SUMMER 2006
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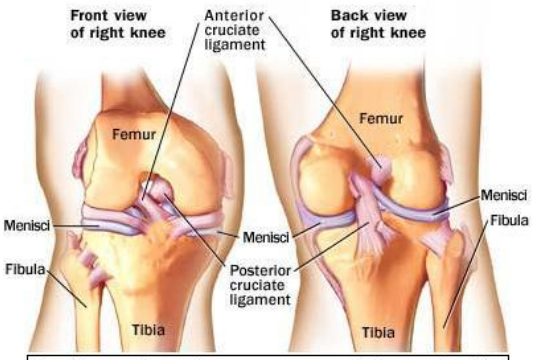
ACUPUNCTURE AND THE KNEE

People tend to take their knees for granted until they experience pain or loss of motion. Consider the many activities that involve the human knee: walking, sitting down, standing up, crouching, kicking... A great amount of physical activity involves the knee, which is why knee pain can so completely alter a person's life. According to the National Institutes of Health, more than 4 million Americans seek help for knee pain each year.

The knee is the largest joint in the human body, one of the hardest working and most complicated. It is comprised of 4 bones as well as ligaments, tendons, muscles, cartilage and bursae.

The bones are the ***femur*** (thigh bone), ***tibia*** (large shin bone), ***fibula*** (small shin bone) and ***patella***, or "kneecap." The patella slides up and down in a groove on the front of the femur as the leg is bent or straightened. If the patella somehow slips out of the ***femoral groove*** a "***dislocated kneecap***" results. Usually a kneecap is dislocated when the patella slips to the outside of the knee. The kneecap will move excessively from side to side, and there will be local pain and swelling, with difficulty walking and straightening the knee. Having dislocated a kneecap once leads to an increased likelihood of dislocating it again, and these repeated dislocations can lead to chronic knee pain. Strength training of the muscles that hold the kneecap in place can reduce the chances of dislocation.

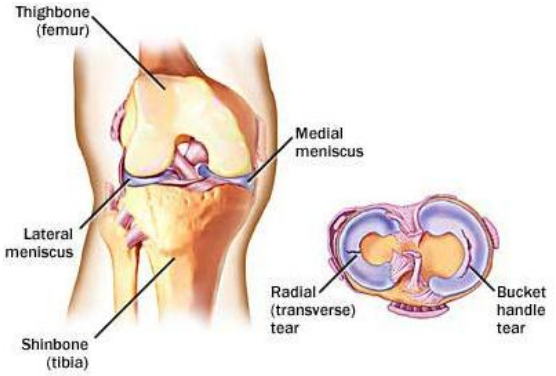


Four ligaments in you knee serve to connect the femur to the tibia. The collateral ligaments are located on the side of your knee, and the ACL and PCL crisscross one another as they join these leg bones together.

Ligaments are strong bands of tissue that help connect and stabilize the bones. The knee has 4 main ligaments: the ***medial collateral ligament (MCL)*** on the inner knee, the ***lateral collateral ligament*** (***LCL***) on the outer knee, and 2 inside the structure of the knee itself: the ***anterior cruciate ligament***, or ***ACL***, and the ***posterior cruciate ligament***, or ***PCL***. Smaller ligaments help keep the patella centered over the femoral groove. A tear in one of the collateral ligaments is usually the result of a fall or contact trauma, especially from contact sports, and such a tear is sometimes accompanied by a ripping sensation and will cause immediate pain. If you tear your ACL you may feel or hear a "pop" in the knee, and the joint will swell rapidly. An ACL tear can be due to knee hyperextension and may cause the knee to buckle under pressure. A PCL tear is not nearly as noticeable or painful. The most common symptoms of a PCL tear are pain and swelling behind the knee.

Two cartilaginous structures known as ***menisci*** (singular ***meniscus***) provide further stability and act as shock absorbers between the femur and the tibia. Damage to either meniscus is often described as "***torn***

cartilage," and if the menisci are degraded enough the knee joint may be bone-on-bone. Cartilage damage is one of the hallmarks of ***osteoarthritis***, a common knee ailment caused by wear-and-tear and age. There is also a second kind of cartilage in the knee called ***articular cartilage***. This is the smooth, shiny material that wraps the bones of the knee. This kind of cartilage is present anywhere 2 bony surfaces come in contact with one another. Articular cartilage allows the knee bones to move smoothly as the knee bends or straightens.



The meniscus, a C-shaped piece of cartilage in your knee, can tear in several ways, including radially — from the inside to the outside rim — and horizontally. In a bucket-handle tear, the cartilage flips into the knee joint itself.

Tendons are necessary to attach muscle to bone. The ***quadriceps tendon*** attaches the strong quadriceps muscle on the front of the thigh to the patella. It then covers the patella and continues down the leg as the ***patellar tendon,*** where it attaches to the front of the tibia. The hamstring muscles at the back of the thigh attach to the tibia at the back of the knee. The quadriceps is the main muscle used to straighten the knee, while the hamstring does the most work in bending the knee. ***Tendinitis*** is caused when tendons become irritated or inflamed. Athletes – especially runners, skiers and cyclists – are prone to inflammation in the patellar tendon. Tendinitis can occur in one or both knees, often causing pain and swelling at the front of the knee and just below the kneecap. If the quadriceps or patellar tendons rupture partially, pain will be most intense when the leg is extended. If one of the tendons completely ruptures, leg extension becomes all but impossible.

Finally the knee contains several ***bursae*** (singular ***bursa***). These are small, fluid-filled sacs that decrease friction between tissues and protect bony structures. The most commonly injured bursa in the knee is the ***prepatellar bursa*** located in front of the kneecap. Normally a bursa has very little fluid in it, but when irritated it can fill with fluid and grow rather large. When this happens to the prepatellar bursa it is often described as ***water on the knee*** or ***bursitis***. Symptoms of bursitis are swelling, warmth and redness over the inflamed area, aching or stiffness when walking and considerable pain upon kneeling. Sometimes the prepatellar bursa becomes infected, leading to fever, pain and swelling.

Many things can cause knee injury. According to the Mayo clinic, one of the leading risk factors for knee pain is excess weight. Extra pounds increase the load the knee has to bear. Being overweight also accelerates the breakdown of cartilage, putting people at an increased risk for osteoarthritis. Some other factors contributing to knee pain are overuse; lack of muscle flexibility; weak muscles; structural problems such as leg length discrepancies, misaligned knees or flat feet; high-risk sports like soccer, football and alpine skiing; previous injury and age. Also, for reasons that are unclear, women are more likely than men to develop ACL tears, and teenage girls are more likely than teenage boys to experience dislocated kneecaps.

There is strong evidence that acupuncture is very effective for knee pain, and it has been proven to be more effective than sham acupuncture treatment. The National Institutes of Health, in the largest and longest controlled phase III clinical trial of acupuncture ever conducted, concluded that acupuncture reduces both the pain and the functional impairment of osteoarthritis of the knee. In another study conducted by the University of

Maryland School of Medicine, 570 patients received either acupuncture or sham acupuncture treatments for knee osteoarthritis. Those receiving real acupuncture reported improvement in function and pain relief in comparison to the sham treatments.

Dr. Wang's Story

In 1972, as I was completing my premedical science degree at the University of Montana, Missoula, I suffered from a severe soccer injury in my right knee. Even with regular medical attention I was limping for several months. A course of acupuncture treatments (3–6 times) brought me back to the soccer field. This successful treatment of my knee is the reason I chose to make acupuncture my career, moving back to Taiwan to further my studies in Oriental Medicine.

I am still very active in sports, playing tennis 2-3 times weekly without having had any knee surgery. During a flare up of knee pain 2 years ago I had 5 sessions of hyaluronic acid injections to help with knee joint fluid, and I continue to take oral supplements and herbs and receive occasional acupuncture treatment to maintain knee function. I know firsthand the good that acupuncture can do for knee pain and injury. I've had the fortune to treat many local athletes, from being the official acupuncturist for the now-defunct San Diego Soccers, to treating knee pain in players from the Padres and Chargers, as well as university soccer and tennis teams.

HERBAL SUPPLEMENTS & PLASTERS

Several Chinese herbal formulas are helpful with knee injuries. Four of the most beneficial are:

- Du Huo Ji Sheng Wan
- Jin Gu Die Da Wan
- Tian Qi Du Zhong Wan
- Xi Guan Jie Xiao Tong Wan
- Conquer HA, an oral hyaluronic acid supplement

Herbal plasters are also helpful in reducing pain from knee injury.

THE OFFICE WILL BE 

Dr. Wang will be out of the office from Tuesday October 31st through Thursday November 16th, 2006. He will be taking patients as usual starting Friday November 17th. Dr. Helen Hu will be available to see patients while Dr. Wang is away. Her office phone number is (619) 226-6506 and her address is 1267 Rosecrans Street, Suite C, San Diego, CA 92106. To learn more about Dr. Hu, visit http://sandiegolongevity.com. Laura will be retrieving phone calls while the office is closed and will be able to schedule appointments for Dr. Wang's return. We are sorry for any inconvenience.